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square miles of territory. From its latitude the region is seen at once to be distinctly tropical. On our own continent its position is equivalent to the region stretching from northern Nicaragua to southern Texas. In this region Dr. Lisboa found 278 species of grasses, a very good number when we consider that this is a list made in India, and a preliminary list at that.

The general nature of this grass flora may be seen from the following synopsis of the tribes:

<i>Panicææ</i> ,	13 genera,	71 species.
<i>Tristegineæ</i> ,	1 genus,	13 "
<i>Oryzææ</i> ,	2 genera,	2 "
<i>Zoysiaæ</i> ,	5 "	5 "
<i>Andropogoneæ</i> ,	21 "	109 "
<i>Maydeæ</i> ,	3 "	4 "
<i>Agrostideæ</i> ,	6 "	14 "
<i>Aveneæ</i> ,	4 "	5 "
<i>Chlorideæ</i> ,	8 "	22 "
<i>Festuceæ</i> ,	8 "	25 "
<i>Hordeæ</i> ,	3 "	3 "
<i>Bambuseæ</i> ,	3 "	5 "

It is thus seen that all of the generally recognized tribes excepting the Phalarideæ are represented. The largest genera are *Panicum*, with 30 species; *Andropogon*, with 46; *Ischæmum*, 19, and *Eragrostis*, 17. There is a notable absence of certain of our best known genera, *e. g.*, *Agrostis*, *Bouteloua*, *Poa*, *Bromus*, *Agropyron* and *Elymus*. On the other hand, in addition to those already mentioned, there are species of many of our common genera, *e. g.*, *Aristida*, *Avena*, *Chloris*, *Hordeum*, *Paspalum*, *Setaria*, *Sporobolus*, etc. Some of the Indian species have come to us as weeds or cultivated plants, *e. g.*, *Panicum*, (*Syntherisma*) *sanguinale*, *P. crus-galli*, *P. miliaceum*, *Setaria* (*Ixophorus*) *glauca*, *S. (I.) verticillata*, *Polypogon monspeliensis*, *Sporobolus indicus*, *Avena fatua*, *Cynodon* (*Capriola*) *dactylon*, *Eleusine* (*Leptochloa*) *mucronata*, *Eragrostis major*, *E. minor*, *E. pilosa*. Two species, *viz.*, *Panicum proliferum* and *Phragmites*

communis, which occur in India, appear to be indigenous to North America also.

It is unfortunate that but 400 copies of this useful list were ordered to be printed by the Bombay government.

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SCIENTIFIC NOTES AND NEWS.

MR. CHARLES A. SCHOTT, Chief of the Computation Division of the Coast and Geodetic Survey, has been awarded the Wilde Prize by the French Academy, which is conferred on the one judged the most worthy from among those who make discoveries in or write works on astronomy, chemistry, geology, physics or mechanics. The award to Mr. Schott is supposed to be based on his work on terrestrial magnetism.

A COURSE of public lectures will be given at Columbia University, between December 5th and 16th, on every afternoon except Saturday and Sunday, by Professor William K. Brooks, head of the department of zoology at Johns Hopkins University. The lectures are to be on 'The Foundations of Zoology,' and while popular in form will present the results of the latest scientific generalizations, together with some account of the men by whom the results in this branch of science have been obtained. The lectures will be given late in the afternoon at Schermerhorn Hall.

THE U. S. Fish Commission Steamer *Fish Hawk* is working, under the direction of Professor Hermon C. Bumpus, in Narragansett Bay and the waters around Block Island. Several questions connected with the breeding habits and distribution of the star fish, and incidentally other problems connected with the marine fauna, are receiving considerable attention. Since the boat has returned from Cuba she has been thoroughly repaired, and is now fully equipped with her customary apparatus for work along the shore line. Lieutenant Commander Richard G. Davenport, of the U. S. Navy, is the commanding officer.

At a meeting of the Board of Ordnance and

Fortification, on November 10th, it was decided to institute an investigation of the possibilities of flying machines for reconnoitering purposes and as engines of destruction in time of war, and \$25,000 of the fund at the disposal of the Board was appropriated for the purpose. The experiments will be carried out under the direction of General A. W. Greely, of the Signal Service, who will have the advantage of the advice of Professor Langley.

PROFESSOR J. K. REES, of the Columbia University Observatory, has received recently, from Miss Catherine W. Bruce, of New York City, means for building a special photographic telescope. This instrument will be mounted at Helsingfors, and will be employed by Dr. Donner to make polar trail-plates for Dr. Jacoby, in accordance with the plan suggested by him lately at the Astronomical Conference in Boston (See SCIENCE No. 197, page 451). Miss Bruce also sent Professor Rees funds for carrying on the computing work of the Observatory. Dr. H. S. Davis, in his work on the re-reduction of Piazzi's star catalogue, has been generously aided by the same liberal giver. Most assuredly does Miss Bruce deserve the title of Patroness of Astronomy, for she has scattered her gifts far and wide, but always wisely.

DR. CALMETTE, Director of the Pasteur Institute of Lille, has given to that institution a donation of 250,000 francs. The money is to be applied provisionally to the defraying of building expenses till the municipal council is in a position to vote the sums, and is then to be employed in the purchase of material for new researches, or for the maintenance of students making original researches in the laboratory. Dr. Calmette states that his gift represents the profits accruing to him from the application of one of his discoveries in a large distillery at Seclin.

A BRONZE tablet, with a bust in relief, in memory of the eminent physicist Neumann, who died in 1895, has been unveiled in the Hall of the University of Königsberg, in commemoration of the hundredth anniversary of his birth.

SIR W. H. WHITE, Chief Constructor of the British Navy, has been nominated as President of the British Institute of Mechanical Engineers.

DR. JOHN WILLIAM TOORE has been elected President and Dr. W. J. Smyly Vice-President of the Royal College of Physicians in Ireland for the ensuing year.

THE following is a list of those who have been recommended by the President and Council of the Royal Society for election into the Council for the year 1899 at the anniversary meeting on November 30th: President, Lord Lister; Treasurer, Mr. A. B. Kempe; Secretaries, Professor Michael Foster and Professor A. W. Rücker; Foreign Secretary, Sir Edward Frankland; other members of the Council, Professor T. G. Bonney, Captain E. W. Creak, R.N., Professor D. J. Cunningham, Professor James Dewar, Professor W. D. Halliburton, Professor W. A. Herdman, Mr. Victor A. H. Horsley, Dr. J. Larmor, Professor N. S. Maskelyne, Sir Andrew Noble, Professor E. B. Poulton, Dr. W. S. Russell, Professor Arthur Schuster, Mr. D. H. Scott, Dr. Stoney and Professor J. J. Thomson.

A STATUE of Volney was unveiled on October 31st in the French village of Craon, where he was born in 1757. It will be remembered that Volney was a traveler and geographer, though he is doubtless better known for his quasi-philosophical publications and political activity.

THE death is announced of Professor Michele Stefano de Rossi, Director of the Seismographic Observatory at Rome.

MR. LATIMER CLARK, known for his contributions to applied electricity, died on October 28th. We learn from a notice in the *London Times* that he was born in 1822 at Great Marlow, and gained his first practical experience in railway engineering in 1847, as resident assistant engineer under Robert Stephenson at the building of the Britannia and Conway tubular bridges. Of these he published a description a few years later. He next entered the employment of the Electric Telegraph Company, and from assistant engineer rose to be engineer-in-chief. In this capacity he superintended the construction of much of the telegraphic system of Great Britain, and in 1854 introduced the device of pneumatic despatch tubes for the transmission of messages, which

are now extensively used by the Post Office. As a member of the committee instituted in 1869 by the government, in consequence of the numerous failures of submarine enterprises, to inquire into the question generally, he was of great assistance to the cause of oceanic telegraphy, and, in addition to the help he was able to give the committee as an ordinary witness, put in a valuable supplementary report on the determinations of the laws of electric currents in submarine cables, which embodied the results of his own practical experience and experimental work. In 1860 he entered into partnership with Sir Charles Bright, and many of the cable enterprises carried out during the ensuing ten years were under their supervision as consulting engineers. A joint paper by them, contributed to the British Association in 1861, was the means of putting electrical measurement on a firm basis. After it had been read, Sir William Thomson, now Lord Kelvin, obtained the appointment of a committee to devise a national system of electrical units, and the result of its labors was the absolute system now in universal use, the terms volt, ampere, ohm, etc., being adopted according to suggestions made in Bright and Clark's paper. The 'Elementary Treatise on Electrical Measurement,' which has become a standard work, appeared in 1868, and a few years later Mr. Clark, in conjunction with Mr. R. Sabine, published 'Electrical Tables and Formulæ.' In 1873 he described the Clark standard voltaic cell, which has proved of great value in promoting accurate measurements of electrical potentials.

THE plan of appointing a commission to study questions relating to the Colonial Botanical Gardens and Experimental Stations of France, which we noted last week, has been carried into effect, and its scope has been extended to include gardens in France. M. Milne-Edwards, Director of the Paris Museum of Natural History, has been appointed President of the Commission.

THE general committee appointed to commemorate the thousandth anniversary of the death of Alfred the Great have resolved, "That the national memorial decided on at the Mansion-house meeting of March 18th shall be at

Winchester and consist of a statue of King Alfred, together with a hall to be used as a museum of early English history." It was estimated that £30,000 would be required for this purpose.

THE United States Civil Service Commission announces that it has received information from the War Department that the necessity for the employment of electrical engineers at New York City and Fort Caswell has practically ceased for the present, and the Commission, therefore, has canceled the examination announced to be held on December 6, 1898. Hereafter the subject of electrical engineering will be an optional subject in junior civil engineer examinations for the Engineer Department at Large (War Department), so that persons qualified as electrical engineers may have an opportunity to have their qualifications tested. The junior civil engineer examination will be given next spring. Applications and information in regard thereto may be obtained after January 15, 1899.

THE position of seed-testing clerk, Division of Botany, Department of Agriculture, will be filled by a civil service examination on December 6th. The chief subject of examination will be practical questions and trials in seed-testing, but the examination will also include structural botany and translations from scientific botanical German into English.

THE International Geodetic Conference met at Stuttgart on October 3d for the first time since its reorganization at Berlin in 1895. Fifteen States of the twenty-two belonging to the Association were represented by official delegates. Probably the most important work accomplished was arranging or the erection and conduct of six stations for the systematic study of variations of latitude. These stations will be at Cincinnati, Dover and Ukiah (Cal.), in the United States; Mizusawa, in Japan; Tschardjouï, in Central Asia, and Carloforte, in Sicily.

FOUR further congresses have arranged meetings in connection with the Paris Exposition of 1900: A congress on railways, a congress on navigation, a congress on the strength of materials and a congress on appliances for

steam engines. The first two congresses are already organized, having held previous meetings. The two latter will hold their first meetings at Paris.

AN International Exposition of Horticulture will be held at St. Petersburg from the 17th to the 27th of May, 1899.

THE Executive Committee of the National Pure Food and Drug Congress have issued a call for a meeting at Washington on January 18, 19, 20 and 21, 1899.

THE annual meeting of the Nebraska Academy of Science will be held on November 25th and 26th, in the Botanical Lecture Room of the University of Nebraska, in Lincoln. Dr. H. B. Ward is the President, and Professor G. D. Swezey, Secretary.

A CONFERENCE of teachers of chemistry will be held at the University of Michigan, December 27, 1898. This is the sixth of these annual conferences of teachers of chemistry in high schools and colleges. The meetings will continue for two days, the subjects being confined to educational methods and matters. Several reports of committees will be presented for discussion. The program will be sent on request by any member of the Committee of Arrangements, namely: Professor Nef, of the University of Chicago; P. H. Seymour, late of the Detroit high school, and Professor Prescott, of the University of Michigan, Chairman.

THE first evening promenade was held at the Royal Botanic Gardens, Regent's Park, November 2d. The string band of the First Life Guards performed a selection of music in the large conservatory, which was illuminated with fairy lamps, and in which there was also a fine show of chrysanthemums. The new club rooms, which will be formally opened shortly, were freely used by the Fellows and members of the Society.

It appears from the final report of the Congress of the Sanitary Institute, held in Birmingham in September, that the number of tickets issued exceeded that of any previous year, and the attendances were in like proportion. The total number of tickets issued was 1,979, as compared with 1,531 at Leeds last year, 1,225 at Newcastle in 1896, and 1,214 in Liverpool in

1895. The number of visitors to the Health Exhibition this year was 85,212, and was 10,000 greater than had been previously attained.

THERE seems to be a misunderstanding in the medical journals in regard to the usual attitude of men of science toward patents. Referring to the Behring patent of antitoxin in America, a writer in the Berliner *Tageblatt* asked what would have become of the ophthalmoscope if Helmholtz had made a claim to patent his invention. Behring replied that Helmholtz could not do this, because there were at that time no patent laws. The New York *Medical Record* says that Behring traduces the memory of Helmholtz, probably not being aware that it thereby traduces the names of many eminent men of science, including Lord Kelvin and Professor Rowland, who each hold dozens of patents. The question of patents by scientific men is one that deserves consideration and discussion. There is certainly no reason why men of science should not profit from their inventions, but there is a real danger if they undertake to do so lest they may be diverted from scientific to purely technical work. But it is nonsense to speak as the *Medical Record* does of the 'misdeeds' and 'depravity' of Professor Behring. Is not the *Medical Record* copyrighted?

MRS. MILLS, the 'Christian scientist,' who treated the late Harold Frederick in his interest, has been held by a verdict of the Coroner's jury on a charge of manslaughter.

UNIVERSITY AND EDUCATIONAL NEWS.

ACCORDING to the twenty-fifth quarterly statement of the President of the University of Chicago, there were 1,421 students in attendance during the summer quarter, of whom 591 were in the graduate schools. The assets of the University are valued at about \$9,000,000. The income was \$706,973 and the expenditures \$678,399. An annual report of the University will be published hereafter in the autumn, and the first report to be issued during the present month will contain a *résumé* of the work of the University since its foundation.

THE College for Teachers recently established under the University of Chicago, through a gift of Mrs. Emmons Blaine of \$5,000 a year for five